Anaemia is defined as a reduction of haemoglobin concentration in the blood. Two billion people suffer from anemia worldwide and most of them having iron deficiency and haemolytic anaemia due to toxicants and oxidants. Bronchial asthma is characterized by increased airway reactivity to spasmogens and release of inflammatory mediators which results in acute bronchoconstriction, airway hyperresponsiveness and bronchial airway inflammation. Asthma is thought to affect about 3% of the population in most countries. About 70 – 80% of the world populations, particularly in the developing countries, rely on non-conventional medicine in their primary healthcare as reported by the WHO. There has been growing interest in alternative therapies and the therapeutic use of natural products, especially those derived from plants.

Opuntia species (Cactaceae) are a well known and important plant widely used in several indigenous system of medicine for the treatment of various ailments, viz. asthma, inflammatory diseases, ulcer and diabetes. Betalains and phenolic compounds have been reported as the major phytoconstituents of this species. Different pharmacological experiments in a number of in vitro and in vivo models have convincingly demonstrated the ability of Opuntia species to exhibit various pharmacological activities, leading support to the rational behind several of its traditional uses. Due to remarkable biological activity of Opuntia and its constituents, it will be appropriate to develop them as a medicine. The literature study reveals that still today there is no record of phytochemical composition and pharmacological study of Opuntia elatior Mill. fruits in support of traditional and folkloric use. So present study aiming to study phytochemical and pharmacological screening of fruits of Opuntia elatior Mill., commonly known as “Hathlo Thor” belongs to the family Cactaceae. Various animal models and experimental protocols were used in the present study to evaluate haematinic, analgesic and anti-asthmatic activity of fruit of Opuntia elatior Mill.
The authenticity of the freshly collected plant was confirmed by comparing their morphological characters with the description mentioned in different standard texts and floras. The phytochemical analysis was carried out for standardization of fruit juice contained carbohydrates, flavonoids, phenolics and betalains. The fruits were preliminary evaluated by estimation of proximate analysis. The average weight of fruit was $24.568 \pm 7.134$ g/unit and among percentage of peel and seed was very low compared to the edible portion.

Phytochemical analysis indicates the presence of color pigment betacyanin as an active principle and sugar content in high amount and low acidity of fruit which make it very sweet and delicious. Presence of betacyanin was confirmed by spectrophotometric, HPLC and LC-MS techniques. The total betacyanin content (47.10 mg/100 ml) equivalent to betanin obtained from fruits of *Opuntia elatior* Mill. was higher compare to *Opuntia ficus-indica* and *Opuntia undulata* Griff. while lower compare to *Opuntia stricta* Haw.

The fruit juice (20 ml/kg) showed no significant change in the various autonomic and behavioral responses of rat compared to the control animals in acute toxicity study. Based on acute toxicity study we have selected three dose of fruit juice low (5 ml/kg), medium (10 ml/kg) and high (15 ml/kg).

Haematinic activity of fruit juice was evaluated by mercuric chloride and phenylhydrazine induced anaemia. Fruit juice at the dose of 10 ml/kg and 15 ml/kg showed good percentage of recovering in haemoglobin, 32.99 % and 38.18 %, respectively, which was higher than standard treated group (29.8 %) indicating correction of anaemia induced by mercuric chloride after 30 days treatment. Treatment with fruit juice (5, 10, 15 ml/kg) for 30 day showed significant increase in RBC ($p < 0.001$) compared to positive control at day 30 and it equivalent to standard in mercuric chloride induced anaemia.

Phenylhydrazine altered the haematological parameters by haemolysis characterized by decrease in haemoglobin concentration, total RBC counts and PCV on day 3. However, the haematological parameters were restored to normal range after treatment with fruit juice of *Opuntia elatior* Mill. for 12 days. The
speedy and progressive recovery of anaemic rats responding to treatment of *Opuntia elatior* Mill. fruits may be due to increased erythropoiesis and/or antioxidant property of betacyanin.

The potential antinociceptive as central analgesic by using tail immersion test and peripheral analgesic by using acetic acid induced writhing test of the fruits of *Opuntia elatior* Mill. was investigated. Fruits of *Opuntia elatior* Mill. is endowed with central and peripheral analgesic properties might be due to presence of phenolics and betanin content.

Anti-asthmatic activity was characterized using spasmolytic, mast cell stabilizing and anti-inflammatory models. Bronchodilating effect of fruit juice was dose dependant against spasm induced by acetylcholine and histamine. *Opuntia elatior* Mill. fruits possess a significant inhibitory effect on rat and guinea pig ileum contraction via antihistaminic and antimuscarinic action. Fruit juice was also found to inhibit the degranulation of mast cells induced by an immunological and a non-immunological stimulus. Fruit juice was found to have a potent anti-inflammatory activity against carrageenan induced pedal edema in rats and significantly reduced neutrophil adhesion. Fruits of *Opuntia elatior* Mill. has potential anti-asthmatic activity that may be due to its bronchodilator, mast cell stabilization, anti-inflammatory and reduction of neutrophil adhesion property.

The peel extracts of fruit exhibited antimicrobial actions in a dose dependant manner against both test bacteria and fungi. Antimicrobial activity of the peel extracts is directly concerning with the components that they contain. Petroleum ether, benzene and methanol extracts showed maximum inhibitory action against gram positive bacteria, gram negative bacteria and fungi, respectively.

These findings on haematinic, analgesic and anti-asthmatic effects of fruit juice, further add value to the nutritional characteristics of the fruits of *Opuntia elatior* Mill.